

WHAT IS CLAIMED IS:

1. A delivery apparatus for a self-expanding stent comprising:

5 a substantially tubular shaft having a proximal end, a distal end, a guidewire lumen extending between the proximal and distal ends, and a stent bed proximate the distal end upon which the self-expanding stent is positioned; and

10 10 a substantially tubular sheath defining an interior volume, the sheath having a proximal end, a distal end, and an enlarged section proximate the distal end, the sheath being coaxially positioned over the shaft such that the enlarged section is aligned with the stent bed, the sheath being formed from an inner polymeric layer, an outer polymeric layer, and a flat wire reinforcement layer.

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2. The delivery apparatus for a self-expanding stent according to Claim 1, wherein the reinforcement layer is sandwiched between the inner and outer polymeric layers and extends along a predetermined length of the sheath.

20 3. The delivery apparatus for a self-expanding stent according to Claim 2, wherein the reinforcement layer comprises wire having a substantially rectangular cross section.

25 4. The delivery apparatus for a self-expanding stent according to Claim 3, wherein the wire comprises stainless steel and has cross-sectional dimensions of 0.003 inches by 0.001 inches.

5. The delivery apparatus for a self-expanding stent according to Claim 4, wherein the flat wire is arranged in a braided configuration.

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6. The delivery apparatus for a self-expanding stent according to Claim 1, wherein the inner polymeric layer comprises polytetrafluoroethylene.

7. The delivery apparatus for a self-expanding stent according to Claim 1, wherein the outer polymeric layer comprises Nylon®.

8. A delivery apparatus for a self-expanding stent comprising:

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a shaft having a proximal end, a distal end, a guidewire lumen extending between the proximal and distal ends, and a stent bed proximate the distal end upon which the self-expanding stent is mounted; and

10 a sheath defining an interior volume, the sheath having a proximal end, a distal end, and an enlarged section proximate the distal end, the sheath being coaxially positioned over the shaft such that the enlarged section is aligned with the stent bed, the sheath being formed from an inner polymeric layer, a lubricious coating on the inner polymeric layer, an outer polymeric layer, and a flat wire reinforcement layer.

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9. The delivery apparatus for a self-expanding stent according to Claim 8, wherein the reinforcement layer is sandwiched between the inner and outer polymeric layers and extends along substantially the length of the sheath.

20 10. The delivery apparatus for a self-expanding stent according to Claim 9, wherein the reinforcement layer comprises wire having a substantially rectangular cross section.

25 11. The delivery apparatus for a self-expanding stent according to Claim 10, wherein the wire comprises stainless steel and has cross-sectional dimensions of 0.003 inches by 0.001 inches.

12. The delivery apparatus for a self-expanding stent according to Claim 11, wherein the flat wire is arranged in a braided configuration.

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13. The delivery apparatus for a self-expanding stent according to Claim 8, wherein the inner polymeric layer comprises polytetrafluoroethylene.

14. The delivery apparatus for a self-expanding stent according to Claim 8, wherein the outer polymeric layer comprises Nylon®.

 15. The delivery apparatus for a self-expanding stent according to Claim 8,
5 wherein the lubricious coating on the inner polymeric layer comprises a silicone based material.